NCCS Snapshot
January 23, 2007
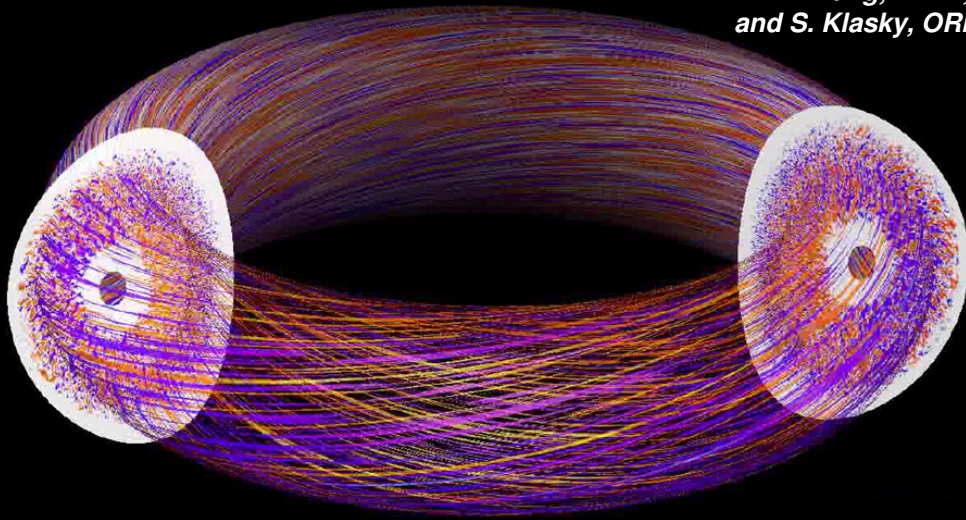
NATIONAL CENTER
FOR COMPUTATIONAL SCIENCES

Oak Ridge National Laboratory
U.S. Department of Energy

Researchers Bring Us Closer to Fusion Energy

- **A team led by Dr. W. W. Lee is using the Jaguar supercomputer to explore heat and particle loss in tokamak reactors**

- **Tokamaks are doughnut-shaped devices that house the ionized gas responsible for sparking the fusion reaction necessary to produce the energy**

  W. X. Wang, PPPL, and S. Klasky, ORNL

  – **Temperature must be regulated in the tokamak to create a proper environment for reactions**

  – **The device must be large enough to facilitate the reactions**

  – **Researchers hope to discover the optimum combination of hydrogen, deuterium, and tritium**


Small eddies created by plasma turbulence are shown in cross-section along with the magnetic field lines threading the simulated tokamak

Training Explores the Inner Workings of Lustre

- **Class gives a detailed look at Lustre file system**
- **Sponsored by Lustre Center of Excellence**
- **Given by Lustre architect Peter Braam of Cluster File Systems, Inc.**
- **Topics include system architecture, troubleshooting, internals, and profiling**
- **More than 30 systems experts participate**
- **Future trainings will be provided for applications developers**

lustre™

NCCS Astrophysicist to Give Distance Lecture

► **Bronson Messer of the Scientific Computing Group to discuss "Computational Astrophysics"**

► **2007 INCITE projects including the Milky Way's dark matter halo and the mergers of massive black holes at the center of galaxies**

► **Supernovas, including core-collapse supernovas and Type 1A supernovas**

► **Series given in conjunction with Georgia Tech**

► **Lectures slated each Friday through the end of the Georgia Tech term**
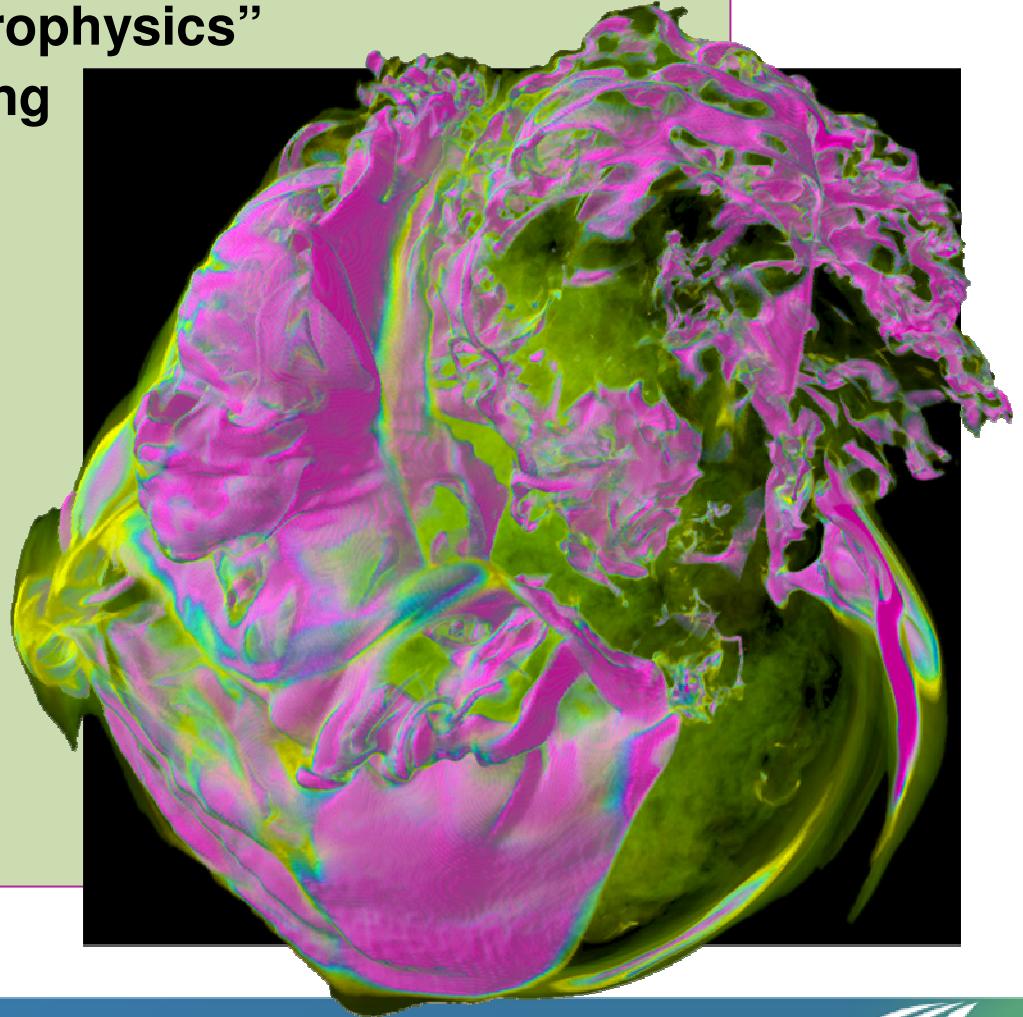
NCCS Users to Gather in March

- Three-day meeting scheduled March 27–29 at the JICS building at ORNL

- INCITE projects invited (75 million hours allocated on Jaguar and Phoenix in 2007)

- Presentations from NCCS staff and users include XT3/XT4 architecture and software, X1E architecture, visualization, end-to-end data analysis, and storage solutions

- Tutorials focus on XT3, X1E, Cray performance tools, MPI I/O, and visualization

March 27–29, 2007

National Center for Computational Sciences